

Title (en)

DYNAMIC SCHOTTKY BARRIER MOSFET DEVICE AND METHOD OF MANUFACTURE

Title (de)

DYNAMISCHES SCHOTTKY-BARRIEREN-MOSFET-BAUELEMENT UND HERSTELLUNGSVERFAHREN

Title (fr)

DISPOSITIF MOSFET A BARRIERE DE SCHOTTKY DYNAMIQUE ET PROCEDE DE FABRICATION DE CELUI-CI

Publication

EP 1683193 A1 20060726 (EN)

Application

EP 04795798 A 20041021

Priority

- US 2004034686 W 20041021
- US 51341003 P 20031022
- US 51404103 P 20031024

Abstract (en)

[origin: WO2005038901A1] A device for regulating a flow of electric current and its manufacturing method are provided. The device includes metal-insulator-semiconductor source-drain contacts forming Schottky barrier or Schottky-like junctions to the semiconductor substrate. The device includes an interfacial layer between the semiconductor substrate and a metal source and/or drain electrode, thereby dynamically adjusting a Schottky barrier height by applying different bias conditions. The dynamic Schottky barrier modulation provides increased electric current for low drain bias conditions, reducing the sub-linear turn-on characteristic of Schottky barrier MOSFET devices and improving device performance.

IPC 8 full level

H01L 21/336 (2006.01); **H01L 29/06** (2006.01); **H01L 29/08** (2006.01); **H01L 29/41** (2006.01); **H01L 29/78** (2006.01)

CPC (source: EP US)

H01L 29/0653 (2013.01 - EP US); **H01L 29/0895** (2013.01 - EP US); **H01L 29/66636** (2013.01 - EP US); **H01L 29/66643** (2013.01 - EP US); **H01L 29/7839** (2013.01 - EP US); **H01L 29/6656** (2013.01 - EP US)

Citation (search report)

See references of WO 2005038901A1

Citation (examination)

US 6037605 A 20000314 - YOSHIMURA HISAO [JP]

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

WO 2005038901 A1 20050428; EP 1683193 A1 20060726; US 2005139860 A1 20050630; US 2007026590 A1 20070201; US 2010015802 A1 20100121; US 2012056250 A1 20120308; US 8058167 B2 20111115

DOCDB simple family (application)

US 2004034686 W 20041021; EP 04795798 A 20041021; US 201113296162 A 20111114; US 54363106 A 20061005; US 56865509 A 20090928; US 97068804 A 20041021